

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TENNESSEE
WESTERN DIVISION

ANGLEFIX, LLC,)	
)	
Plaintiff,)	
)	
v.)	No. 2:13-cv-02407-JPM-tmp
)	
WRIGHT MEDICAL TECHNOLOGY,)	
INC.,)	
)	
Defendant.)	

ORDER FOLLOWING CLAIM CONSTRUCTION HEARING

Before the Court is the parties' request for claim construction pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed. Cir. 1995) (en banc).

I. BACKGROUND

A. Factual Background

Plaintiff AngleFix, LLC ("AngleFix" or "Plaintiff") is a North Carolina corporation with its principal place of business in North Carolina. (Compl. ¶ 5, ECF No. 1.) Defendant Wright Medical Technology, Inc. ("Wright Medical" or "Defendant") is a Tennessee corporation with its principal place of business in Tennessee. (Id. ¶ 6.) This case involves the alleged infringement of the following patent on a "multi-angular plate

and screw system," developed by Dr. Laurence E. Dahners (id. ¶ 5):

U.S. PATENT NUMBER	ISSUED	PATENT
6,955,677 ("the '677 Patent")	October 18, 2005	Multi-angular Fastening Apparatus and Method for Surgical Bone Screw/Plate Systems

(Compl. ¶¶ 5, 8.) Plaintiff asserts that it is the exclusive licensee of the '677 Patent. (Id. ¶ 5.) Plaintiff alleges that Defendant manufactures and distributes medical products that infringe one or more of the claims of the '677 Patent (id. ¶¶ 9, 12, 16). Plaintiff also alleges that Defendant contributorily infringes (id. ¶ 13) and induces others to infringe at least one claim of the '677 Patent (id. ¶ 14).

B. Procedural History

This case concerns alleged infringement of United States Patent Number 6,955,677 (the "'677 Patent"). (See ECF No. 1.) The Complaint was filed by Plaintiff on June 11, 2013. (ECF No. 1.) On September 20, 2013, Defendant filed an Answer to the Complaint and Counterclaims. (ECF No. 7.) On April 14, 2014, Defendant filed a petition with the United States Patent and Trademark Office ("PTO") for inter partes review ("IPR") before the Patent Trial and Appeal Board ("PTAB") seeking review of the '677 Patent. (ECF No. 21-1 at 2.) Defendant's petition was filed one week after the PTO granted IPR for the '677 Patent in

the parallel case, AngleFix Tech, LLC. v. Smith & Nephew, Inc., No. 2:13-cv-02281-JPM-tmp. On May 1, 2014, the Court granted the Motion to Stay in the parallel case based on the PTO's decision to grant the petition for IPR. (AngleFix Tech, LLC. v. Smith & Nephew, Inc., No. 2:13-cv-02281-JPM-tmp (W.D. Tenn.), ECF No. 53.)

On June 26, 2014, Defendant filed a Motion to Stay Pending IPR. (AngleFix Tech, LLC v. Wright Med. Tech., Inc., No. 2:13-cv-02407-JPM-tmp (W.D. Tenn.), ECF No. 21.) On July 14, 2014, Plaintiff filed its Response to Defendant's Motion to Stay. (ECF No. 22.) Defendant filed a Reply on July 22, 2014. (ECF No. 29.)

On July 15, 2014, both parties filed opening claim construction briefs. (ECF Nos. 23, 24.) On August 15, 2014, both parties filed responsive claim construction briefs. (ECF Nos. 32, 33.) The parties filed a Joint Claim Construction and Prehearing Statement on August 29, 2014. (ECF No. 34.) On October 7, 2014, the Claim Construction Hearing was reset to November 14, 2014. (ECF No. 39.) On the same day, Plaintiff filed notice with the Court that the PTO had granted Defendant's IPR with regard to twenty-seven of the thirty-nine '677 Patent's claims. (ECF No. 40 at 1.) On October 8, 2014, the Court ordered the parties to file a Joint Status Report in light of

the PTO's decision to grant IPR. (ECF No. 41.) The parties filed the Joint Status Report on October 15, 2014. (ECF No. 42.) The Court granted the Motion to Stay Pending IPR on October, 22, 2014. (ECF No. 44.)

On March 29, 2015, Plaintiff filed a Motion to allow Plaintiff to voluntarily withdraw the twenty-seven claims under IPR and to lift the stay pending IPR on the remaining twelve claims ("Motion to Lift the Stay Pending IPR"). (ECF No. 45.) The Defendant filed its Response in Opposition on April 9, 2015. (ECF No. 46.) On May 6, 2015, the Court filed an Order for Clarification as to whether the withdrawal of the twenty-seven claims would be with prejudice. (ECF No. 47.) On May 21, 2015, Plaintiff filed Notice with the Court that the withdrawal of the claims would be with prejudice. (ECF No. 48.) The Court denied the Motion to Lift the Stay Pending IPR on June 12, 2015. (ECF No. 49.) On July 6, 2015, Defendant filed the Judgment and Final Written Decision in the IPR by PTAB. (ECF No. 50.) The decision was based on the patent owner's disclaiming of all the claims under review by PTAB. (See id.)

On July 17, 2015, Plaintiff filed an Answer to Defendant's counterclaims, denying Defendant's allegations of non-infringement and invalidity. (ECF No. 53.)

A scheduling conference was held on August 27, 2015. (ECF No. 58.) On September 28, 2015, the Claim Construction Hearing was held. (ECF No. 67.) On October 5, 2015, Defendant filed a Supplemental Claim Construction Brief on the use of the word "permanent" in Defendant's construction of the terms "tap," "tapped," or "tapping." (ECF No. 70.) On October 12, 2015, Plaintiff filed a responsive post-hearing brief. (ECF No. 71.)

A settlement conference was held on October 28, 2015 (Min. Entry, ECF No. 77), but the parties did not reach an agreement. The Court granted a joint motion for a protective order on November 16, 2015. (ECF No. 82.)

II. CLAIM CONSTRUCTION STANDARD

"In conducting an infringement analysis, a court must first determine the meaning of any disputed claim terms and then compare the accused device to the claims as construed." Proveris Sci. Corp. v. Innovasystems, Inc., 739 F.3d 1367, 1371-72 (Fed. Cir. 2014) (citing Wavetronix LLC v. EIS Elec. Integrated Sys., 573 F.3d 1343, 1354 (Fed. Cir. 2009)); accord Markman, 52 F.3d at 976. Regarding the first step, claim construction is a question of law with "evidentiary underpinnings" to be determined by the court. Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 835, 838 (2015); Markman v. Westview Instruments, Inc., 517 U.S. 370, 390 (1996)). Where

terms or phrases are “not commonly understood,” a court may make subsidiary findings of fact based on evidence extrinsic to the patent to assist the court in its task of claim interpretation. See Teva Pharm., 135 S. Ct. at 837–38. These factual determinations precede the court’s ultimate legal construction of the patent’s claims. Id.

A. Claims

Claim construction begins with the language of the claims themselves. Braintree Labs., Inc. v. Novel Labs., Inc., 749 F.3d 1349, 1354–55 (Fed. Cir. 2014) (citing Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001)). Claim terms in the patent “are generally given their ordinary and customary meaning, which is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” Ethicon Endo-Surgery, Inc. v. Covidien, Inc., 796 F.3d 1312, 1323 (Fed. Cir. 2015) (citing Phillips v. AWH Corp., 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc)). This general rule has two known exceptions: (1) “when a patentee sets out a definition and acts as his own lexicographer,” or (2) “when the patentee disavows the full scope of the claim term either in the specification or during prosecution.” Hill-Rom Servs., Inc. v. Stryker Corp., 755 F.3d 1367, 1371 (Fed. Cir. 2014) (quoting Thorner v. Sony Comput.

Entm't Am. LLC, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). Where a claim term has more than one "ordinary" meaning, or when reliance on a term's "ordinary" meaning does not resolve the parties' dispute, a determination that a claim term "needs no construction" or has the "plain and ordinary meaning" may be inadequate. O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008).

"To determine the scope and meaning of a claim, we examine the claim language, written description, prosecution history, and any relevant extrinsic evidence." InTouch Techs., Inc. v. VGO Commc'ns, Inc., 751 F.3d 1327, 1339 (Fed. Cir. 2014) (citing Phillips, 415 F.3d at 1315-19); Markman, 52 F.3d at 978-79.

Apart from the claim language itself, the specification is the single best guide to the meaning of a claim term. And while the prosecution history often lacks the clarity of the specification, it is another established source of intrinsic evidence. After considering these three sources of intrinsic evidence, a court may also seek guidance from extrinsic evidence. However, extrinsic evidence may be less reliable than the intrinsic evidence.

Vederi, LLC v. Google, Inc., 744 F.3d 1376, 1382 (Fed. Cir. 2014) (citations and internal quotation marks omitted).

Regarding the relationship of dependent claims to independent claims, there is a presumption under the doctrine of claim differentiation that limitations found in dependent claims are not included in the independent claim. See GE Lighting

Sols., LLC v. AgiLight, Inc., 750 F.3d 1304, 1310 (Fed. Cir. 2014); Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 910 (Fed. Cir. 2004). Claim differentiation, however, “is not a hard and fast rule, and the presumption can be overcome by a contrary construction required by the specification or prosecution history, such as via a disclaimer.” GE Lighting Sols., 750 F.3d at 1310.

B. Intrinsic Record

1. Specification

“The specification is fundamental to claim construction, as it is the single best guide to the meaning of a disputed term.” Trading Techs. Int’l, Inc. v. Open E Cry, LLC, 728 F.3d 1309, 1319 (Fed. Cir. 2013) (quoting Phillips, 415 F.3d at 1315). In determining the meaning to be given to claim terms, a court must read the terms in the context of the specification as it is the patent specification which, by statute, must contain a “full, clear, concise, and exact” description of the invention. 35 U.S.C. § 112(a); accord Phillips, 415 F.3d at 1311. Consequently, “claim terms must be construed in light of the specification and prosecution history, and cannot be considered in isolation.” GE Lighting Sols., 750 F.3d at 1308-09 (citing Phillips, 415 F.3d at 1313).

Although claim terms are normally given their ordinary and customary meaning, a patentee may depart from this rule by acting as his own lexicographer or by disavowing the claim scope in the specification. Phillips, 415 F.3d at 1316.

"Idiosyncratic language, highly technical terms, or terms coined by the inventor are best understood by reference to the specification." 3M Innovative Props. Co. v. Tredegar Corp., 725 F.3d 1315, 1321 (Fed. Cir. 2013) (citing Phillips, 415 F.3d at 1315-16). To use a special definition of a claim term, the patentee must "clearly" redefine the term and have an "express intent" to do so within the patent. Thorner, 669 F.3d at 1365-66; Elektro Instrument S.A. v. O.U.R. Sci. Int'l, Inc., 214 F.3d 1302, 1307 (Fed. Cir. 2000)).

Courts, however, "do not read limitations from the embodiments in the specification into the claims." Hill-Rom, 755 F.3d at 1371 (citing Liebel-Flarsheim, 358 F.3d at 904). This requirement prevents a court from limiting the scope of the claims to only the preferred embodiment or specific examples disclosed in the specification. Epos Techs. Ltd. v. Pegasus Techs. Ltd., 766 F.3d 1338, 1341 (Fed. Cir. 2014) ("[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the

intrinsic record that the patentee intended the claims to be so limited." (quoting Liebel-Flarsheim, 358 F.3d at 913)).

2. Prosecution History

"A court should also consider the patent's prosecution history, if it is in evidence. The prosecution history consists of the complete record of the proceedings before the [U.S. Patent and Trademark Office]." InTouch Techs., 751 F.3d at 1341 (citations and internal quotation marks omitted).

"[P]rosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Plantronics, Inc. v. Aliph, Inc., 724 F.3d 1343, 1350 (Fed. Cir. 2013) (alteration in original) (quoting Phillips, 415 F.3d at 1317). A court "does not rely on the prosecution history to construe the meaning of the claim to be narrower than it would otherwise be unless a patentee limited or surrendered claim scope through a clear and unmistakable disavowal." 3M, 725 F.3d at 1322 (citing Trading Techs. Int'l, Inc. v. eSpeed, Inc., 595 F.3d 1340, 1352 (Fed. Cir. 2010)).

C. Extrinsic Evidence

"Although it is less significant than intrinsic evidence, a court can consider extrinsic evidence in the record, which

'consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.'" Aristocrat Techs. Austl. PTY Ltd. v. Int'l Game Tech., 709 F.3d 1348, 1355 (Fed. Cir. 2013) (quoting Phillips, 415 F.3d at 1317). Although such evidence is generally considered less reliable than the intrinsic record, a court is free to consider it and may do so at any stage of its inquiry. Phillips, 415 F.3d at 1317-19. A court may rely on extrinsic evidence so long as the evidence does not contradict the intrinsic record. Advanced Fiber Techs. (AFT) Trust v. J & L Fiber Servs., Inc., 674 F.3d 1365, 1374-75 (Fed. Cir. 2012) (citing Phillips, 415 F.3d at 1319).

III. ANALYSIS OF THE '677 PATENT

The Asserted Patent, U.S. Patent Number 6,955,677, is a "Multi-angular Fastening Apparatus and Method for Surgical Bone Screw/Plate Systems."

A. The Disputed Claims

The parties disagree about the proper construction of several claim terms found in the patent. The independent claims containing disputed language are as follows, with the dependent claims referenced and the contested language underlined:

1. Claim 1

Claim 1 is the first independent claim of the '677 Patent, on which asserted claims 3, 4, 9, 11, and 18 depend.

1. A surgical plate adapted for fixation with a bone screw, comprising first and second opposing major surfaces, an inside surface extending between the first and second major surfaces and defining an aperture generally coaxially disposed about an aperture axis, and a non-rotatable, non-threaded tappable contact region disposed on the inside surface of the aperture, the tappable contact region having an inside diameter large enough to permit a bone screw to pass therethrough at a variable insertion angle defined between the longitudinal axis of the bone screw and the aperture axis, and the tappable contact region is formed so as to allow for being tapped by an external thread of the bone screw to rigidly affix the bone screw to the tappable contact region at a selected one of a plurality of different insertion angles that can be selectively formed between the axis of the bone screw and the aperture axis.

('677 Patent col. 10 ll. 36-51, ECF No. 23-1 at PageID 349.)

2. Claim 21

Claim 21 is the second independent claim of the '677 Patent, on which asserted claims 31 and 33 depend.

21. A fastening apparatus adapted for multi-angular insertion, comprising:

- (a) a fastener comprising an elongate section and an adjoining head section disposed along a fastener axis, the head section comprising a thread; and
- (b) a fastener receiving member comprising first and second opposing major surfaces, an inside surface extending between the first and second major surfaces and defining an aperture generally coaxially disposed about an aperture axis, and a non-rotatable tappable contact region disposed on the inside surface of the aperture, the tappable

contact region having an inside diameter large enough to permit the elongate section of the fastener to pass therethrough at a variable insertion angle defined between the fastener axis and the aperture axis, and the tappable contact region is formed so as to allow for being tapped by the thread of the head section to rigidly affix the head section to the tappable contact region at a selected one of a plurality of different angles that can be selectively formed between the axis of the fastener and the aperture axis.

(Id. col. 11 ll. 41-61.)

3. Claim 39

Claim 39 is the third independent claim of the '677 Patent, on which asserted claims 41, 42, and 43 depend.

39. A method for affixing a fastener to a fastener receiving member at a desired orientation, comprising the steps of:

- (a) providing a fastener comprising an elongate section and an adjoining head section disposed along a fastener axis, the head section comprising a thread;
- (b) providing a fastener receiving member comprising first and second opposing major surfaces, an inside surface extending between the first and second major surfaces and defining an aperture generally coaxially disposed about an aperture axis, and a non-rotatable tappable contact region disposed on the inside surface of the aperture, the tappable contact region having an inside diameter large enough to permit the elongate section of the fastener to pass therethrough at a variable insertion angle defined between the fastener axis and the aperture axis, and the contact region is formed so as to allow for being tapped by the thread of the head section to rigidly affix the head section to the tappable contact region at a selected one of a plurality of different angles that can be selectively formed between the axis of the fastener and the apertur[e] axis;

- (c) selecting one of the plurality of different insertion angles at which the fastener is to be inserted in relation to the fastener receiving member;
- (d) inserting the elongate section through the aperture until the thread of the head section contacts the non-rotatable tappable contact region; and
- (e) tapping the fastener into the receiving member such that the fastener is rigidly oriented at the selected insertion angle by threading the thread of the head section into the non-rotatable tappable contact region while the fastener is oriented at the selected insertion angle.

(Id. col. 12 l. 43 - col. 13 l. 9.)

4. Claim 47

Claim 47 is the fourth independent claim of the '677 Patent.

47. A surgical plate adapted for fixation with a bone screw, comprising first and second opposing major surfaces, an inside surface extending between the first and second major surfaces and defining an aperture generally coaxially disposed about an aperture axis, and a non-threaded tappable contact region disposed on the inside surface, wherein the tappable contact region has a minimum inside diameter large enough to permit a bone screw to pass therethrough at an insertion angle defined between a longitudinal axis of the bone screw and the aperture axis, and the tappable contact region is adapted for being tapped by an external thread of the bone screw to affix the bone screw to the tappable contact region at the insertion angle and wherein the tappable contact region comprises a plurality of protrusions extending generally radially inwardly from the inside surface and a plurality of interstices between the protrusions.

(Id. col. 13 ll. 40-55.)

5. Claim 54

Claim 54 is the fifth independent claim of the '677 Patent, on which asserted claims 63 and 65 depend.

54. A fastening apparatus adapted for multi-angular insertion, comprising:

- (a) a fastener comprising an elongate section and an adjoining head section disposed along a fastener axis, the head section comprising a thread, said fastener comprising a surgical bone screw; and
- (b) a fastener receiving member comprising first and second opposing major surfaces, an inside surface extending between the first and second major surfaces and defining an aperture generally coaxially disposed about an aperture axis, and a tappable contact region disposed on the inside surface, wherein the tappable contact region has a minimum inside diameter large enough to permit the elongate section to pass therethrough at an insertion angle defined between the fastener axis and the aperture axis, and the tappable contact region is adapted for being tapped by the thread of the head section to affix the head section to the tappable contact region at the insertion angle.

(Id. col. 14 ll. 4-22.)

6. Claim 71

Claim 71 is the sixth and last independent claim of the '677 Patent, on which asserted claims 72 and 73 depend.

71. A method for affixing a fastener to a fastener receiving member at a desired orientation, comprising the steps of:

- (a) providing a fastener comprising a threaded elongate section and an adjoining head section disposed along a fastener axis, the head section comprising a thread;
- (b) providing a fastener receiving member comprising first and second opposing major surfaces, an inside

surface extending between the first and second major surfaces and defining an aperture generally coaxially disposed about an aperture axis, and a tappable contact region disposed on the inside surface;

- (c) selecting an insertion angle at which the fastener is to be inserted in relation to the fastener receiving member, wherein the insertion angle is defined between the fastener axis and the aperture axis;
- (d) inserting the elongate section through the aperture until the thread of the head section contacts the tappable contact region;
- (e) tapping the fastener into the receiving member such that the fastener is oriented at the selected insertion angle by threading the thread of the head section into the tappable contact region while the fastener is oriented at the selected insertion angle; and
- (f) comprising the step of placing one of the major surfaces of the receiving member against bone material, and inserting the elongate section of the fastener into the bone material by threading the elongate section into the bone material.

(Id. col. 15 l. 4 - col. 16 l. 3.)

B. Claim Terms Agreed Upon

The parties agree with respect to the construction of the terms "interstices," "protrusions," and "disposed on the inside surface" as their plain and ordinary meanings. (ECF No. 34 at 2.) The Court acknowledges these constructions, as they may provide useful and relevant context. Accordingly, the Court ADOPTS the agreed-upon constructions of "interstices" to mean "spaces"; "protrusion" to mean "material that extends out from a surface and does not form a thread"; and "disposed on the inside

surface" to mean "located at or on the inside surface of the hole." (See id.)

C. The Disputed Terms

1. "Non-threaded"

Plaintiff asserts that the plain and ordinary meaning of "non-threaded" is "without a continuous feature on the inner surface of the hole which has a fixed engagement configuration with a feature on the surface of the screw." (ECF No. 23 at 4, 23.) Plaintiff argues that the specification of the '677 Patent demonstrates that the construction of "non-threaded" is based on function and not form. (Id. at 4.) Plaintiff argues, therefore, that if a structure on one part can engage with a structure on a second part in more than one orientation, they are "non-threaded" regardless of the nature of the thread. (Id.) Plaintiff argues that the Defendant's construction ignores the patent specification and would permit too many structures to be considered threads when they would not actually function as threads. (Id. at 4-5.)

Defendant argues that the plain and ordinary meaning of "non-threaded" is "not containing a helical ridge (continuous or intermittent)." (ECF No. 24 at 9-10.) Defendant asserts that the parties agree that "non-threaded" is the opposite of "threaded," which means "bearing a thread." (Id. at 10.)

Defendant argues that a thread has "two universally accepted structural features": a helical form and a length that is either continuous or intermittent. (Id.) Defendant argues that its construction is consistent with the prosecution history and patent specification, while Plaintiff's construction is contrary to the intrinsic record. (Id. at 13-15.) In its responsive claim construction brief, Defendant argues that Plaintiff's assertion that the construction of "non-threaded" is based on function, not form, is unsupported. (ECF No. 32 at 5.)

The Court first looks to the claims themselves and construes claim terms therein as having their plain and ordinary meaning absent indication of a contrary meaning in the specification or prosecution history. See 3M, 725 F.3d at 1321; Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). The term "non-threaded" appears in independent claims 1 and 47. ('677 Patent col. 10 ll. 40-41, col. 13 l. 44, ECF No. 23-1 at PageID 349, 351.) The term is used to describe a tappable contact region to which a bone screw is to be affixed by tapping. (Id.) While the claims do not suggest a meaning contrary to the plain and ordinary meaning of "non-threaded" as "not containing a thread," the Court looks to the specification for further evidence of the meaning of "non-threaded."

The patent specification describes non-threaded apertures of a receiving member such as a bone plate as "not contain[ing] a permanent helical thread structure of fixed orientation." ('677 Patent col. 6 ll. 66 - col. 7 l. 1.) The specification notes that "the invention departs from the conventional use of a thread formed on [the] inside surface" of the aperture of a receiving member. (Id. col. 6 ll. 63-65.) The specification also refers to threads as winding around the outer surface of the fastener sections in a "generally helical" fashion. (See, e.g., id. col. 4 ll. 66-67.) These descriptions provide some support to both parties' constructions. Other evidence is needed to determine the proper construction of "non-threaded."

Intrinsic evidence includes the prosecution history of the patent. See supra Part II.B.2, at 10. "A patentee's statements during reexamination can be considered during claim construction" Krippelz v. Ford Motor Co., 667 F.3d 1261, 1266 (Fed. Cir. 2012). IPR and post-grant review have effectively replaced inter partes reexamination procedures. See Trial Practice Before the Patent Trial and Appeal Board Rules, 37 CFR §§ 42.100-42.224 (2012).

In IPR proceedings before PTAB in a different case involving the '677 Patent, the patent owner argued that "[n]on-threaded means not having a thread or a partial thread

that functions as a thread." (See Smith & Nephew IPR Decision at 10 (Smith & Nephew, Inc. v. Univ. of N.C. at Chapel Hill, No. IPR2014-00112 (P.T.A.B. Apr. 8, 2014)), ECF No. 21-3.) PTAB determined that the patent owner's construction, which differed from the petitioner's in that it excluded partial threads, that is, threads with discontinuous ridges, was consistent with the patent specification. Id. at 11. "The broadest reasonable construction of the claim term 'non-threaded,' consistent with the specification, is 'not containing any forms of permanent internal thread structures.' This construction . . . excludes both a continuous thread in the form of a helical ridge and a partial thread that functions as a thread." Id.

Defendant's construction is consistent with the PTAB construction because it excludes both continuous helical ridges, or threads, and intermittent helical ridges, which could be partial threads functioning as threads. During the claim construction hearing, Plaintiff argued that there exist intermittent helical ridges that do not function as threads, which should not be excluded from the construction of "non-threaded." (Tr. 45:1-12, ECF No. 69.) While Plaintiff's construction does not make explicit reference to whether the "continuous feature" must function as a thread, the requirement that the "feature on the inner surface of the hole . . . has a

fixed engagement configuration with a feature on the surface of the screw" suggests that the features function as threads. (ECF No. 23 at 4.)

Defendant's assertion that threads are "universally accepted" to be helical in structure is supported by extrinsic evidence. Dictionary definitions of "thread" in the context of screws specify a helical nature. See Thread, Dictionary.com, <http://dictionary.reference.com/browse/thread?s=t> (last visited Oct. 29, 2015) ("the helical ridge of a screw"); Thread, Merriam-Webster.com, <http://www.merriam-webster.com/dictionary/thread> (last visited Oct. 29, 2015) ("a projecting helical rib . . . by which parts can be screwed together"). While dictionary definitions are not accorded as much weight as intrinsic evidence, their use is not precluded so long as the definitions are consistent with the intrinsic evidence. Vitronics, 90 F.3d at 1584 n.6.

In this case, the dictionary definitions do not contradict the intrinsic record and suggest that "non-threaded" requires the absence of a helical ridge or rib. Plaintiff argues that Defendant's construction "ignores other shapes of threads," but fails to provide evidence of non-helical threads that would be inconsistent with Defendant's construction. (ECF No. 23 at 4.)

To accept Plaintiff's construction would mean that an aperture that allows for multiple angles of engagement with a screw must be non-threaded even if the aperture's surface contains helical segments otherwise functioning as a thread. This construction is inconsistent with the plain and ordinary meaning, the patent specification, the patent owner's assertion before PTAB, the construction PTAB itself adopted, and dictionary definitions. Defendant's construction, however, is too broad and eliminates functionality as a consideration, which is inconsistent with PTAB's construction. Further, Defendant's construction does not consider the fixed orientation discussed by the specification. Accordingly, the Court modifies AngleFix's construction of "non-threaded" and adds "intermittent" and "helical" so as to exclude apertures whose inner surfaces contain helical segments functioning as threads. The Court construes "non-threaded" as: "without a continuous or intermittent helical feature on the inner surface of the hole which has a fixed engagement configuration with a helical feature on the surface of a screw."

2. "Tappable contact region"

Plaintiff asserts that there is no plain and ordinary meaning for "tappable contact region" and proposes that the term means "a region which is deformable or deflectable by engagement

with the head of a bone screw in a manner which retains the bone screw at a desired, non-predetermined angle." (ECF No. 23 at 26.) Plaintiff argues that the patent specification teaches that a tappable contact region at the inner surface of a hole where the screw enters is deformed or deflected by the screw head to create a functional internal thread. (Id. at 26-27.) Plaintiff asserts that the construction of "tappable contact region" and "tap," "tapped," or "tapping" should be consistent. (Id. at 28.)

Defendant asserts that there is no plain and ordinary meaning for "tappable contact region" and proposes that the term means "untapped region of material structured to enable a threaded fastener to form a custom and mating thread in the region in response to forceful insertion and rotation of the threaded fastener." (ECF No. 24 at 15.) Defendant asserts that a person with ordinary skill in the art would understand "tappable" to be "able to be tapped, but . . . not yet . . . tapped." (Id. at 16.)

The term "tappable contact region" is used in nearly twenty claims of the '677 Patent. Claim 1, for example, describes the tappable contact region as

having an inside diameter large enough to permit a bone screw to pass therethrough at a variable insertion angle . . . [and] formed so as to allow for being tapped by an external thread of the bone screw

to rigidly affix the bone screw to the tappable contact region at a selected one of a plurality of different insertion angles that can be selectively formed between the axis of the bone screw and the aperture axis.

('677 Patent col. 10 ll. 42-51.) Claim 54 describes the tappable contact region as "adapted for being tapped by the thread of the head section to affix the head section to the tappable contact region at the insertion angle." (Id. col. 14 ll. 20-22.) The patent specification, with references to a labeled figure in the patent, provides further guidance on the meaning of "tappable": "'tappable' is used herein to denote that contact region 85 is structured such that it can be tapped by second thread 51 of head section 40 of fastener [screw] 10 in response to forceful insertion and rotation of head section 40 into the material of contact region 85." (Id. col. 7 ll. 3-7.) The engagement between the screw and tappable contact region, therefore, "enables the user to manipulate second thread 51 of head section 40 to form, in effect, a custom internal thread in contact region 85 sufficient to maintain fastener 10 at an arbitrary orientation . . . selected by the user." (Id. col. 7 ll. 8-12.)

The Court may "rely heavily on the written description for guidance as to the meaning of the claims." Phillips, 415 F.3d at 1317. In this case, Defendant's construction is more aligned

with the written description of the patent because it follows the specification more closely than Plaintiff's construction does. Defendant's construction explains that the material of the contact region enables the region to be tapped by force while Plaintiff's construction only states that there is "engagement" between the tappable contact region and the screw. Since "[c]laim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims[,]

. . . . [i]t is not an obligatory exercise in redundancy [of the claims]." U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997) (emphasis added). The Court finds that Plaintiff's construction does not adequately clarify the term "tappable contact region."

While Plaintiff's construction does explain that the region must be "deformable or deflectable," which is consistent with the patent specification and dependent claims 46 and 76 (see '677 Patent col. 8 ll. 61-65, col. 13 ll. 37-39, col. 16 ll. 23-25), the construction cannot be applied to the term universally in the patent. The specification references deformability of the tappable contact region only in a description of an alternative embodiment. (See id. col. 8 ll.

44-67.)¹ The specification references deflectability of fibers only in a description of the same alternative embodiment. (See id. col. 9 ll. 63-66.) Where the specification discloses an embodiment narrower than the scope of invention contemplated by the claims, it is improper to read those limitations onto the claimed invention. See Acumed LLC v. Stryker Corp., 483 F.3d 800, 807 (Fed. Cir. 2007) ("Although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments." (citations omitted) (quoting Phillips, 415 F.3d at 1323)). In addition, Plaintiff's construction improperly limits the tappable contact region to engagement only with a bone screw. See infra Part III.C.3, at 29-30. The Court finds Defendant's construction less restrictive in that it is aligned with the specification as a whole, not just an alternative embodiment.

Defendant's construction, however, is not without inconsistencies. Defendant's construction again fails to

¹ The specification also refers to protrusions in the tappable contact region that "may or may not deform or otherwise move" when the fastener is driven into the contact region. ('677 Patent col. 9 ll. 60-63; see also id. col. 8 l. 1.) This does not support Plaintiff's construction for two reasons: Plaintiff's construction states that the region itself, not any protrusion in the region, is deformable or deflectable; and even if the protrusions were in essence indistinguishable from the region itself, the specification includes the possibility that no deformation of the protrusions occurs at all.

consider that the fastener contacts the region at a certain angular orientation. Additionally, Defendant's construction describes a "custom and mating thread" when the specification refers only to the formation of a "custom internal thread." (See, e.g., '677 Patent col. 7 l. 10.) "Mating" in the specification is used only when describing the conventional method, from which the patent distinguishes itself, of fastening a threaded-head screw to a plate. (See id. col. 1 ll. 41-44, 55-59, col. 6 ll. 63-65.) Thus, it would be inappropriate to include "mating" in the instant claim construction.

In another case involving the '677 Patent, PTAB stated that "the broadest reasonable construction of the claim term 'tappable contact region,' consistent with the specification, is a contact region that is capable of being modified to form an internal screw thread by means of a tap." (Smith & Nephew IPR Decision at 10 (Smith & Nephew, No. IPR2014-00112).) PTAB referenced the ordinary meaning of tap and cited a dictionary definition of the verb: "to form an internal screw thread in by means of a tap [i.e., a tool for forming an internal screw thread]." (Id. at 9 (quoting Tap, Merriam Webster's Collegiate Dictionary 1205 (10th ed. 1993)).) PTAB, in the IPR proceedings initiated by Defendant after this case began, also found that "a tappable contact region is untapped, that is, not pre-tapped . .

. [but] adapted to be tapped." (Wright Medical IPR Decision at 8 (Wright Medical Tech., Inc. v. Univ. of N.C., No. IPR2014-00626 (P.T.A.B. Oct. 7, 2014)), ECF No. 40-1.) The constructions by PTAB support Defendant's construction, which includes the limitation "untapped" and describes the creation of a thread by inserting a threaded fastener. The creation of a thread by force is included in the Court's construction of "tap," "tapped," or "tapping." See infra Part III.C.3, at 32. Thus, the Court does not include that duplicative language in its construction of "tappable contact region."

Accordingly, the Court modifies the parties' constructions of "tappable contact region" to reflect the above findings. The Court construes "tappable contact region" as: "untapped region of material structured to enable a threaded fastener to tap the region at a desired, non-predetermined angle."

3. "Tap," "tapped," or "tapping"

Plaintiff asserts that the plain and ordinary meaning of "tapped" or "tapping" is "deforming or deflecting the tappable contact region so as to secure a bone screw at a desired, non-predetermined angle." (ECF No. 23 at 28.) Plaintiff asserts that Defendant's construction improperly requires permanency of a mating thread. (Id. at 28-31.)

Defendant asserts that "tap," as in "tapped" or "tapping," means "create a permanent mating thread in a material in response to forceful insertion and rotation of a thread." (ECF No. 24 at 15.) Defendant asserts that its construction is consistent with the patent specification and prosecution history. (Id. at 17.) Defendant argues that Plaintiff's construction introduces a limitation - "secur[ing] a bone screw" - that is not supported by the patent specification. (Id. at 19 (alteration in original).)

The Court agrees that Plaintiff's limitation requiring "tap," "tapped," or "tapping" to apply only to securing a bone screw is too restrictive. While claims 1 and 47 specifically refer to "a surgical plate adapted for fixation with a bone screw" ('677 Patent col. 10 l. 36, col. 13 l. 40), other claims containing the disputed terms more generally refer to "fasteners" whose threads tap the tappable contact region (see, e.g., id. col. 11 ll. 43-61). The specification describes a fastener "utilized as a bone screw" in a preferred implementation of the invention but, as such, does not require all fasteners to be bone screws. (Id. col. 5 ll. 4-5; see also id. col. 8 l. 42 ("[i]n non-orthopaedic applications"), col. 9 ll. 8-10 ("the fastener/receiver system provided by the invention can be applied to any procedure, surgical or

non-surgical").) To apply Plaintiff's construction to all claims would therefore be inappropriate. See Phillips, 415 F.3d at 1323 (acknowledging that there is sound reason "to avoid the danger of reading limitations from the specification into the claim[s]").

In addition, Plaintiff's inclusion of "deforming or deflecting" is inconsistent with the specification for the same reasons as stated previously. See supra Part III.C.2, at 25-26. Similarly, Defendant's inclusion of "mating" is inconsistent with the specification as well. See id. at 25.

Whether the inclusion of "permanent" in Defendant's construction is appropriate is less clear. The claims themselves make no mention of tapping to create a permanent thread. The claims only state that the fastener be "rigidly affix[ed]" to the tappable contact region. (See, e.g., '677 Patent col. 11 ll. 56-59.) The patent specification, while referring to the absence of permanent threads on the inside surface of the tappable contact region, see supra Part III.C.1, at 19-20, does not describe the creation of a permanent thread by tapping a fastener. (See '677 Patent col. 2 ll. 19-21, col. 6 ll. 66-67.)

Both parties filed supplemental briefing on the use of the word "permanent" in the construction of "tap," "tapped," or

"tapping." (See ECF Nos. 70, 71.) Defendant asserts that "permanent" was not to mean existing in perpetuity but rather only "until acted upon by another prevailing force sufficient to change the material." (ECF No. 70 at 4.) Plaintiff argues that Defendant's definition describes "temporary" rather than "permanent." (ECF No. 71 at 4.) The Court is not persuaded that the inclusion of "permanent" is either necessary or appropriate, based on the claims and specification of the '677 Patent. Permanency is not a requirement present in the claims, nor is its mention in the specification in a context germane to thread creation by a tap. The Court agrees with Plaintiff that Defendant's argument, which explicitly acknowledges that a hole may be re-tapped (see ECF No. 70 at 5), does not support its own inclusion of "permanent."

Defendant's construction also specifies that a thread is created "in response to forceful insertion and rotation of a thread." (ECF No. 24 at 15.) The Court finds that this construction is imprecise because the specification describes the tappable contact region as being "tapped . . . in response to forceful insertion and rotation of [the] head section" of a fastener. ('677 Patent col. 7 ll. 5-6.) Thus, the Court finds "of a head section" to be more accurate and consistent with the specification than "of a thread."

Accordingly, the Court modifies Defendant's construction of "tap," "tapped," or "tapping" to reflect the above findings. The Court construes "tap," "tapped," or "tapping" as: "create a custom internal thread in a material in response to forceful insertion and rotation of a head section."

4. "Variable insertion angle"

Plaintiff asserts that the plain and ordinary meaning of "variable insertion angle" is "the angle between the screw and the bone plate can vary." (ECF No. 23 at 35.) Plaintiff argues that "[t]here is no minimum variance required in the claims." (Id. at 36.) Plaintiff also argues that Defendant's construction is incorrect because it inserts limitations - "limitless" and "between zero and 90 degrees" - not supported by the patent specification. (Id. at 35-36.)

Defendant asserts that the meaning of "variable insertion angle" is "one of a limitless number of angles between zero and 90 degrees with respect to an axis of a fastener and an aperture axis that can be selected by a user for insertion of the fastener." (ECF No. 24 at 22.) Defendant argues that there is no plain and ordinary meaning for the term "variable insertion angle" in the field and thus, its construction must be derived from the patent specification. (Id.) Defendant cites the specification, which instructs that the "insertion angle [] can

range from 0 to 90 degrees." (Id. (quoting '677 Patent col. 7 ll. 15-17).) Defendant also argues that Plaintiff's construction is inconsistent with the prosecution history and arguments made during IPR. (Id. at 23.)

The Court agrees with Plaintiff that its construction is the plain and ordinary meaning of "variable insertion angle." While the patent specification provides the range of zero to 90 degrees for insertion of the screw with respect to the aperture axis, it also advises that the insertion angle "in practice will be less than 90 degrees." ('677 Patent col. 7 ll. 16-19 (emphasis added).) It is unnecessary to include a range in the construction of "variable insertion angle" when the specification disclaims such a range, even though the specification does not offer an alternative maximum angle. Cf. Watts v. XL Systems, Inc., 232 F.3d 877, 882-83 (Fed. Cir. 2000) (holding that a claim term was limited to only those embodiments described in the specification). In this case, a range of zero to 90 degrees is impermissibly broader than what the specification provides.

Additionally, Defendant's inclusion of "limitless number of angles" is unsupported by the claims and specification. At the claim construction hearing, Plaintiff argued that it is only "[m]athematically [that] there is a limitless number of angles

between zero and 90." (Tr. 30:4-10, ECF No. 69.) Defendant conceded that it would be impossible for a screw to create a 90 degree insertion angle with the aperture. (Id. at 88:1-3.)

In its claim construction brief, Defendant argues that the patent owner presented a definition to PTAB that stated a "variable insertion angle . . . [is the ability to select] any angle without limitation." (ECF No. 24 at 23 (citing ECF No. 24-11 at PageID 954-55)). The Court is unpersuaded that the patent owner's definition means that a screw can be inserted at a limitless number of angles. Rather, the Court agrees with Plaintiff that "unlimited angular selection" and "a selection of an unlimited number of angles" are not the same. (See Tr. 121:4-9, ECF No. 69.) The patent claims and specification support this assertion. (See '677 Patent col. 10 ll. 49 ("a selected one of a plurality of different insertion angles"); id. col. 3 ll. 53-56 ("It is therefore an object of the present invention to provide a plate . . . that enables a threaded fastener to be affixed thereto at a desired angle selected from a range of available angles.")) Accordingly, the Court ADOPTS Plaintiff's construction of "variable insertion angle": "the angle between the screw and the bone plate can vary."

5. "Threading"

Plaintiff asserts that "threading" does not need to be

construed by the Court because its plain and ordinary meaning is adequate. (ECF No. 23 at 31.) Plaintiff proposes a construction, however, should the Court decide to construe the term, specific to its use in the '677 Patent: "engaging the thread of the screw head with and/or between the protrusions of the tappable contact region." (Id.) Plaintiff asserts that Defendant's construction "is not incorrect, if the proper construction for thread is used," but is also a tautological definition that does not clarify the term. (Id.)

Defendant asserts that the plain and ordinary meaning of "threading" is "forming or engaging a thread" based on the plain meaning of the word "thread," which Defendant asserts is "to form a thread, such as during tapping, or to engage a thread, such as when mating a threaded screw with a threaded aperture." (ECF No. 24 at 24-25.) Defendant argues that Plaintiff's construction improperly limits "threading" to the tappable contact region, which is inconsistent with the claims and specification of the '677 Patent. (Id. at 24.)

The Court agrees that Defendant's construction is the plain and ordinary meaning of "threading." The Court finds that Plaintiff's construction unnecessarily limits threading to an engagement of a screw head with and/or between protrusions of the tappable contact region. While Plaintiff is not incorrect

in that the engagement of the screw head and the tappable contact region constitutes threading, the patent claims and specification describe threading in additional contexts. For example, threading of the elongate section of a fastener can extend into bone material. (See, e.g., '677 Patent col. 3 ll. 49-52 ("Further threading of the first thread into the bone material causes the second thread . . . to be threaded into the tappable contact region of the receiving member").) Plaintiff does not dispute Defendant's construction except to assert that it is tautological, but the Court does not find it necessary to construe "threading" beyond its plain and ordinary meaning when the plain and ordinary meaning of "thread" applies, see supra Part II.A, at 6. Accordingly, the Court ADOPTS Defendant's construction of "threading": "forming or engaging a thread."

IV. CONCLUSION

For the foregoing reasons, the Court construes the following terms:

CLAIM TERM	COURT'S CONSTRUCTION
Non-threaded	"without a continuous or intermittent helical feature on the inner surface of the hole which has a fixed engagement configuration with a helical feature on the surface of the screw"

CLAIM TERM	COURT'S CONSTRUCTION
Tappable contact region	"untapped region of material structured to engage the threaded head of a fastener to tap the region at a desired, non-predetermined angle"
Tap, tapped, tapping	"create a custom internal thread in a material in response to forceful insertion and rotation of a head section"
Variable insertion angle	Plain and ordinary meaning: "the angle between the screw and the bone plate can vary"
Threading	Plain and ordinary meaning: "forming or engaging a thread"

IT IS SO ORDERED, this 30th day of December, 2015.

/s/ Jon P. McCalla
JON P. McCALLA
UNITED STATES DISTRICT JUDGE

APPENDIX A

CLAIM TERM	ANGLEFIX'S PROPOSED CONSTRUCTION	WRIGHT MEDICAL'S PROPOSED CONSTRUCTION	COURT'S CONSTRUCTION
Non-threaded	Plain and ordinary meaning: "without a continuous feature on the inner surface of the hole which has a fixed engagement configuration with a feature on the surface of the screw"	Plain and ordinary meaning: "not containing a helical ridge (continuous or intermittent)"	"without a continuous or intermittent helical feature on the inner surface of the hole which has a fixed engagement configuration with a helical feature on the surface of the screw"
Tappable contact region	"a region which is deformable or deflectable by engagement with the head of a bone screw in a manner which retains the bone screw at a desired, non-predetermined angle"	"untapped region of material structured to enable a threaded fastener to form a custom and mating thread in the region in response to forceful insertion and rotation of the threaded fastener"	"untapped region of material structured to engage the threaded head of a fastener to tap the region at a desired, non-predetermined angle"

CLAIM TERM	ANGLEFIX'S PROPOSED CONSTRUCTION	WRIGHT MEDICAL'S PROPOSED CONSTRUCTION	COURT'S CONSTRUCTION
Tap, tapped, tapping	"deforming or deflecting the tappable contact region so as to secure a bone screw at a desired, non-predetermined angle"	"create a permanent mating thread in a material in response to forceful insertion and rotation of a thread"	"create a custom internal thread in a material in response to forceful insertion and rotation of a head section"
Variable insertion angle	Plain and ordinary meaning: "the angle between the screw and the bone plate can vary"	"one of a limitless number of angles between zero and 90 degrees with respect to an axis of a fastener and an aperture axis that can be selected by a user for insertion of the fastener"	Adopt AngleFix's construction: plain and ordinary meaning
Threading	"engaging the thread of the screw head with and/or between the protrusions of the tappable contact region"	"forming or engaging a thread"	Adopt Wright Medical's construction: plain and ordinary meaning